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| 09/692,923 | 10/20/2000 | Francisco Hideki Imai | 1819/100111 | 8475 |
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| EXAMINER | | | | |
| HENN, TIMOTHY J | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/692,923

Applicant(s)

IMAI ET AL.

Examiner

Timothy J. Henn

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 37, 41-44 and 48-50 is/are allowed.
6) ☒ Claim(s) 1, 3, 8-12, 14 and 19-22 is/are rejected.
7) ☒ Claim(s) 4-7 and 15-18 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 10-12, 14, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zigadlo et al. (US 6,292,212) in view of Osthuus et al. (US 5,132,802).

[claim 12]

Regarding claim 12, Zigadlo discloses an apparatus for multi-spectral image capture comprising: an image acquisition system (Figure 1, Item 10 excluding Item 22) having an image sensor (Figure 1, Item 12) which has a set of color filters thereon (Figure 1, Item 14), and two or more color channels having a different spectral sensitivity (Figure 2, G+IR, R+IR, IR) and a set of color filters (Figure 1, Item 22), each of the color filters having a different spectral transmittance (e.g. Figure 1, Item 24 filters IR, Figure 1, Item 26 filters yellow), the filters positioned between the scene (Figure 1, Item 20) and the image acquisition system (Figure 1, Item 10 excluding Item 22).

Zigadlo further discloses that the camera can be used with filter 26 in place to function as an infrared camera and can be used with filter 24 in place to function as a true color camera (c. 3, l. 64 - c. 4, l. 2). However, Zigadlo does not specifically disclose that filters 24 and 26 are non-interference filters.

Official Notice is taken that the use of absorption type non-interference filters are notoriously well known in the art as commonly available color filters which can be obtained at most camera stores. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use absorption type color filters for the IR and Y filters of Zigadlo since they are easily available. However, Zigadlo does not disclose generating a multi-spectral scene description from two or more of an acquired first series of images.

Osthues discloses that a high contrast image of a scene can be obtained by combining an image captured in the IR range with an image captured in the visible light range (Figure 1; c. 1, l. 57 - c. 2, l. 16). Therefore, it would be obvious to capture two images using the system of Zigadlo, a first image in the IR band and a second image in the visible light band and to combine the two images into a single multispectral scene description (since the two images have color channels, the resulting image would be multispectral) to obtain a high contrast image of the scene.

[claim 14]

Regarding claim 14, Official Notice is taken that it is notoriously well known in the art that cameras can be used to capture more than one scene. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

reuse the camera of Zigadlo to capture a second series of images of a second scene as claimed to obtain images of a first scene and second scene without requiring a second image capturing system.

[claim 21 and 22]

Regarding claims 21 and 22, note that the use of absorbance color filters are well known in the art, see the rejection of claim 12 above for further details.

[claims 1, 3, 10 and 11]

Claims 1, 3, 10 and 11 are method claims corresponding to apparatus claims 12, 14, 21 and 22. Therefore, claims 1, 3, 10 and 11 are analyzed and rejected as previously discussed with respect to claims 12, 14, 21 and 22.

4. Claims 8, 9, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zigadlo et al. (US 6,292,212) in view of Osthuus et al. (US 5,132,802) in view of Yamada (US 6,256,067).

[claim 19]

Regarding claim 19, Zigadlo in view of Osthuus discloses an apparatus for multi-spectral image capture comprising, one or more image acquisition systems and a set of non-interference color filters (see the rejection of claim 12 above for further details). However Zigadlo does not disclose the use of one or more illuminants when capturing the series of images. Yamada discloses a camera with a light source system comprising multiple light sources, each of which corresponds to a different spectral power distribution (i.e. color; c. 8, ll. 1-14). By modulating the illumination light, the

camera of Yamada is able to take pictures in which only the subject appears, the subject is enhanced relative to the background or a desired hue characteristic can be enhanced or diminished (c. 14, ll. 37-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the system of Yamada in the camera of Zigadlo to be able to take pictures in which only the subject appears, the subject is enhanced relative to the background or a desired hue characteristic can be enhanced or diminished.

[claim 20]

Regarding claim 20, Zigadlo in view of Osthuysen discloses an apparatus for multi-spectral image capture comprising, one or more image acquisition systems and a set of non-interference color filters (see the rejection of claim 12 above for further details). However Zigadlo does not disclose the use of two or more illuminants when capturing the series of images. Yamada discloses a camera with a light source system comprising multiple light sources, each of which corresponds to a different spectral power distribution (i.e. color; c. 8, ll. 1-14). By modulating the illumination light, the camera of Yamada is able to take pictures in which only the subject appears, the subject is enhanced relative to the background or a desired hue characteristic can be enhanced or diminished (c. 14, ll. 37-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the system of Yamada in the camera of Zigadlo to be able to take pictures in which only the subject appears, the subject is enhanced relative to the background or a desired hue

characteristic can be enhanced or diminished.

[claims 8 and 9]

Claims 8 and 9 are method claims corresponding to apparatus claims 19 and 20. Therefore, claims 8 and 9 are analyzed and rejected as previously discussed with respect to claims 19 and 20.

Allowable Subject Matter

5. Claims 37, 41-44, 48-50 are allowed.

[claims 37, 41-44, 48-50]

Regarding claims 39-43 and 46-50, the prior art does not teach or fairly suggest an image capture system or method of capturing a series of images in which each image is illuminated by a different illuminant and capturing a second series of images of a second scene using a second series of illuminants and generating a characteristic mapping from the second series of filtered images as claimed.

6. Claims 4-7 and 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

[claims 4-7 and 15-18]

Regarding claims 4-7 and 15-18, the prior art does not teach or fairly suggest an image capture system or method of capturing a first series of images and a second series of images in which each image is filtered by a different filter from a set of non-

interference filters, a multi-spectral scene description is generated from the first series of filtered images and a characteristic mapping is generated from the second series of filtered images as claimed.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Henn whose telephone number is (571)272-7310. The examiner can normally be reached on M-F 11-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy J Henn/
Primary Examiner, Art Unit 2622